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New Mites, mostly Economic (Arach., Acar.).

By NATHAN BANKS.

(Plates XIV, XV).

The following new species are part of the great amount of material sent to the United States Bureau of Entomology for determination. The species of definite economic value I have described, and also a few that represent peculiar genera, new to the collections. A new arrangement of the genera of red spiders is also proposed, including three new genera.

EUPODIDAE.

Notophallus viridis n. sp. (Pl. XIV, fig. 4; Pl. XV, fig. 14).

Dark greenish, legs reddish, a red spot on dorsum near tip, and one on venter also near tip; mouth parts red. Body about one and one-third times longer than broad, almost globose, high and broadly rounded behind, above with scattered, fine, short, simple hairs. Legs slender; legs I and IV as long as, or a little longer than body; tarsi I about as long as the preceding joint, tarsus IV plainly a little shorter than

the preceding joint, legs with long slender bristles, more numerous, but shorter, below than above. Mandibles with a slender blade and the opposite portion tipped with a process of several curved teeth; palpi short and stout, last joint scarcely longer than the preceding one.

Length, .8 mm.

From Tempe, Arizona, December 14, 1911 (A. N. Wilson), and Wagoner, Oklahoma, December 3, 1914, on wheat.

TETRANYCHIDAE.

Tetranychus antillarum n. sp. (Pl. XIV, fig. 5; Pl. XV, fig. 13).

Body yellowish, fully twice as long as broad, tapering at each end, with long stout bristles above; two each side in front, the anterior much shorter than the other, abdomen with five in a submedian row each side, and a sublateral row of four bristles, each as long as femur I. Legs shorter or barely as long as body, legs I and IV subequal, leg II about two-thirds as long as leg I, all with long bristles, one on the femur longer than the joint; claw of tarsus strongly bent. Mandibles (inside view) very broad just before tip, then suddenly concavely narrowed to the hook, which is small. Palpi very small and inconspicuous.

Length, .35 mm.

On leaves of *Leonotis nepetaefolia*, August 6, 1912, Rio Piedras, Porto Rico (T. R. Jones), also on *Asclepias curassavica*.

TETRANOBI A n. gen.

The stigmata are in a distinct horn each side at base of the mouth parts. Legs moderately long, first pair as long as the body; the tarsi are plainly shorter than the preceding joint, and end in a single claw. The body is furnished with fine, simple hairs like *Tetranychus*, and there is no four cleft plate on the front margin. The palpi are stout and the thumb tipped with fingers as in *Tetranychus*.

Type *Tetranychus longipes* Bks., and includes also the following new species.

Tetronobia decepta n. sp. (Pl. XIV, fig. 3; Pl. XV, fig. 15).

Body about one and one-half as long as broad, broadest behind the middle, and at this point very high; clothed sparingly above with a few, very short, simple bristles, mostly behind, but one pair on front margin over the mandibles. Legs very slender; leg I as long as body, II not half as long as leg I, III but little longer than II,

IV about as long as width of body; all tarsi shorter than the preceding joint, but more plainly so in leg I; all with long, scattered bristles, most of them more than twice as long as the width of a joint. Palpi very short and stout; thumb cylindrical, ending in three equal fingers.

Length, .65 mm.

From Mesa, Arizona, on barley, March 27, 1913, collected by R. N. Wilson.

TETRANYCHINA n. gen.

There are no prostigmatal horns; the legs are very long and slender, legs I and IV longer than body, and the tarsi much shorter than the preceding joint, each ending in a toothed claw, tarsi I a little enlarged near tip; palpi stout ending in thumb and fingers. Body with stout, usually serrate bristles.

Type.—*T. apicalis* n. sp.

Includes also, I presume, the *Neophyllobius harti* Ewing.

Tetranychina apicalis n. sp. (Pl. XIV, fig. 7).

Body less than twice as long as broad, strongly convex above, a pair of bristles on the front, and two pairs of erect bristles near the tip of abdomen, the hindmost pair almost clavate, both pairs arising from tubercles and are minutely serrate. Legs long and slender with a few very short, fine hairs; leg I much longer than the body; femur I nearly as long as the body; leg II hardly more than one-half as long as leg I, leg III longer than body, and leg IV much longer, but shorter than leg I, all tarsi shorter than preceding joint, and tarsi I plainly a little larger near tip than elsewhere. Palpi rather stout, with a slender thumb, ending in two equal fingers, and a stout bristle or finger, near the upper tip.

Length, .5 mm.

From St. Bernard, Louisiana, on white clover, March 24, 1912. (Parks).

STIGMAEOPSIS n. gen.

Basal part of mandibles united into a plate as in *Tetranychus*, and apical part long, styliform as in that genus. Legs thick throughout as in *Tenuipalpus*, but not wrinkled, two claws, tarsi as long as preceding joint; palpi long, large and porrect, with the thumb not extending beyond the claw. Skin not reticulate, but finely striated. Spinning small dense webs under which they live.

Stigmaeopsis celarius n. sp. (Pl. XV, figs. 9, 11).

Yellowish to greenish, mouth parts often reddish. Body about twice as long as broad, broadest in the middle, cephalothorax with two long bristles each side, one at humerus, four near tip of abdomen, a pair of large ones near the middle of dorsum, and several pairs of smaller ones above. Legs short, thick, hardly longer than the width of body, with a few simple hairs; one near tip of femur is very long. Palpi somewhat curved outwardly, with an out-turned curved apical claw, the thumb pointed. Mandibular plate narrowed at tip, not notched.

Length, .3 mm.

From Oneco, Florida, living in small colonies under small, dense, white webs which are placed here and there, often near ribs, on leaves of bamboo (*Bambusa metake*) (Sasscer).

The description of the above three new genera in the Tetranychidae offers an opportunity to tabulate the genera of this family known to occur in our country. The length of the tarsi compared with the preceding joint, a character hitherto unused, readily divides the family into two sections.

- 1—Tarsi (at least tarsus I) much shorter than the preceding joint;
at least leg I as long, or longer, than body.....2
Tarsi as long as preceding joint; leg I rarely as long as the
body5
- 2—Front margin of cephalothorax with a thin four-lobed or cleft-
plate; body with scale-like hairs.....*Bryobia*.
No such plate on front of body3
- 3—Body with simple hairs; prostigmata in a horn each side at base
of mandibles*Tetranychus*.
Body with spines or stiff serrate bristles; prostigmata not in a
horn4
- 4—Tarsi I enlarged a little toward tip; palpi stout.....*Tetranychina*.
Tarsi I tapering to tip; palpi small and slender; coxae close to-
gether*Neophyllobius*.
- 5—Dorsal surface divided into many small areas; claws two, very
large*Raphignathus*.
Dorsal surface not so divided.....6
- 6—Palpi very slender, and not showing plainly the claw and the
thumb arrangement; mandibles not elbowed near base.....7
Palpi stouter, showing plainly the claw and thumb arrange-
ment8
- 7—Legs transversely wrinkled; large, bordered ventral aperture;
eyes present*Tenuipalpus*.

- Legs not transversely wrinkled; ventral aperture smaller; eyes indistinct *Tetranychoides*.
- 8—Prostigmata in a horn each side at base of mandibles; body short and broad, with large, prominent spines above... *Tetranychopsis*.
 Prostigmata not in a horn, or body not with spines.....9
- 9—Mandibles styliform, elbowed near base; and with a supra-mandibular plate; body not elongate, and thumb not extending much beyond claw; spinning webs.....12
 Mandibles less styliform, not elbowed near base; no supra-mandibular plate10
- 10—Coxae close together; body rather short..... *Acheles*.
 Coxae in two well-separated groups; body elongate.....11
- 11—Thumb extending much beyond the claw; palpi very long, *Caligonus*.
 Thumb barely extending beyond the claw..... *Stigmaeus*.
- 12—Palpi very long, porrect; legs short and thick to tip.. *Stigmaeopsis*.
 Palpi shorter, pendant; legs slender, and tapering to tips....13
- 13—Claws divided into four..... *Tetranychus*.
 Claws single, entire..... *Oligonychus*.
 Claws divided into two..... *Schizotetranychus*.

Paratetranychus Zacher = *Oligonychus* Berlese 1896.

This genus is made for *T. pilosus*; we have it in this country, and also in this genus are *T. bicolor*, *T. modestus*, *T. simplex* and *T. yothersi*.

Schizotetranychus Trägårdh.

This has recently been proposed for *T. schizopus* Zacher; *T. mytilaspidis* and *T. pratensis* will go in this group. Trägårdh has divided *Paratetranychus*, using *Neotetranychus* for those species which have the single claw without a cluster of hairs at base: *T. bicolor*, *T. modestus* would go in it. *T. latus* and *T. banksi* on account of reduced claws would form a new sub-genus which may be called **Eutetranychus**.

PARASITOIDEA.

Spelaeorhynchus latus n. sp. (Pl. XIV, figs. 6, 8).

Yellowish; head and anterior part of shield brownish, a blackish spot on each side of the head and on each side of the shield in front; legs brownish yellow, except the pale articulations and bases of hairs. Head as long on sides as in middle, where it is faintly emarginate, above with crossed ridges. Dorsum of body as broad as long, broadest behind the middle, the posterior margin slightly emarginate in middle; a few short hairs above, one pair on front margin, on sides

one between legs I and II, one over leg II, two over leg III, and four on each posterior side, and three each side near tip, the latter longer than the others, and a few on disc, mostly near the outer margin. Dorsal shield about one and one-half times as long as broad, broadest at lateral angle, much narrowed behind; legs not as long as body, with short, simple bristles, mostly at base and tips of joints, and arising from hyaline spots. Venter with a triangular shield, broader than long, and with two hyaline spots each side, each with a hair; hind margin of coxa I with a spur behind; stigmal plate twice as long as broad.

Length, 1.6 mm.

From Obispo, Canal Zone, on bat, January (Goldman).

Differs from *S. praecursor* in that the body is broader behind, in longer dorsal shield, in head less produced in the middle, in the longer stigmal plate, in shorter sternal shield, and the less hairy body. I consider that this genus is fully as closely related to the Parasitidae as to the Ixodidae, and would place it in a family in the superfamily *Parasitoidea*. The head is very different from the capitulum of the ticks; and the sternal plate, posterior genital opening, and the retractile mandibles ally it more to the *Parasitidae*.

Iphiopsis obesus n. sp. (Pl. XV, fig. 12).

Yellowish brown. Body pyriform, about one and one-half times longer than broad; the dorsum with a few scattered minute hairs arising from hyaline dots, venter with larger short, almost spinelike hairs; legs with simple hairs, and four each side on the sternal plate, the middle ones close together. Sternal plate, concave behind, not reaching behind coxae III; genital plate U-shaped, and plate rather large, broad in front, anus near its hind margin; on the venter are two transverse, corneous plates, the outer one the larger. Spiracles not twice as long as broad, elliptical; legs very stout, hardly as long as the width of body, each tipped by a very large caroncle, most of the joints (except the last) broader than long; first pair of legs not as stout and shorter than the others; palpi very hairy near tip.

Length, .75 mm.

From Altamonte Springs, Florida (F. H. Lewton, coll.).

TYROGLYPHIDAE.

Tyroglyphus sacchari n. sp. (Pl. XIV, fig. 1; Pl. XV, fig. 10).

Body pyriform, about twice as long as broad, broadest behind the middle; cephalothorax rather long, much narrowed in front, the mandibles prominent. Dorsum with long, simple bristles behind, but not

